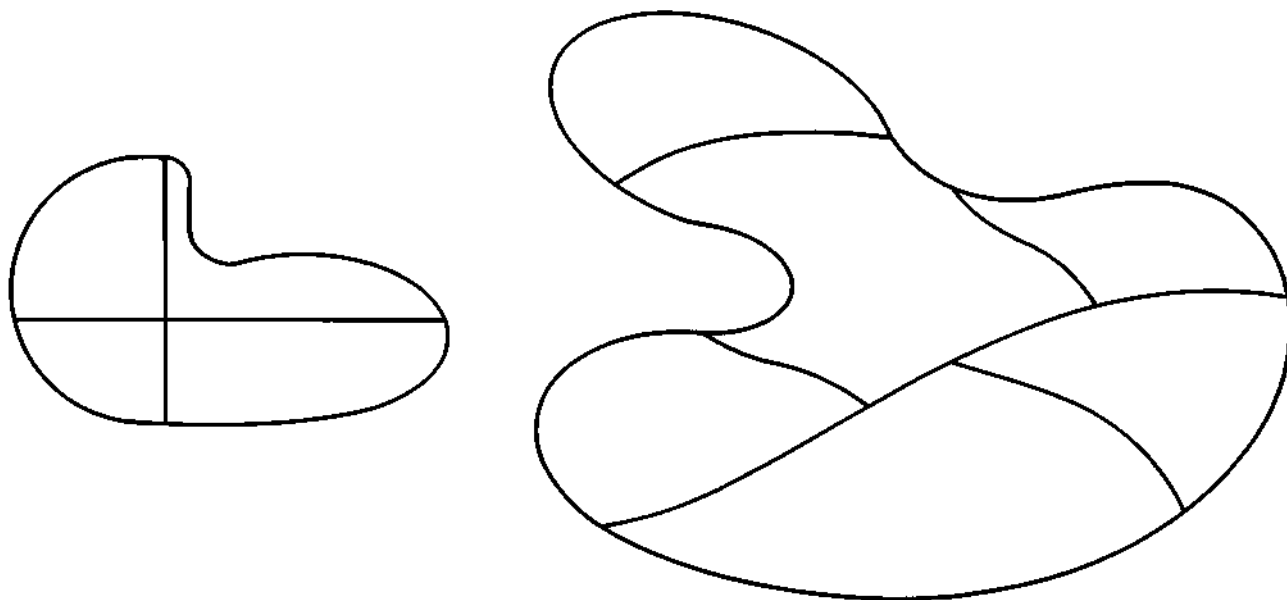


The Problem

For geography class you are to draw and color a map of North and South America. Before you start, you need to know whether or not you have enough colored pencils to color the map. You do not want to waste time shopping if you don't need to. In order to be sure others can read your map, you must never color adjacent regions the same color. (Regions are not considered adjacent if they have only one point in common.) Consider the two simple maps below. How many colors are needed for each of these? How many colors will you need to color the map of North and South America?



Strategies and Hints

1. Work on special cases, making them progressively more complex.
2. Use as few colors as possible, adding a new color only when it is necessary.